MEDICAL PRACTICE

Contemporary Themes

Chronic ulcer of the leg: clinical history

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Abstract

Six hundred patients with chronic leg ulcers were studied by detailed history and examination as part of a population survey. In 22% ulceration began before the age of 40, and in this group the sex incidence was equal. Over age 40 there was an increasing preponderance of women. Ulcers were significantly more common in the left leg in women but not in men. The site of 26% of ulcers did not include the classical medial gaiter area. The median duration of the ulceration at the time of the survey was nine months and 20% had not healed in over two years. The great majority of patients had had recurrence, 66% having had episodes of ulceration for more than five years.

Healing of ulcers is a serious problem, but preventing recurrence is the greater challenge.

Introduction

Chronic leg ulceration affects about 1% of the population at some point in their lives.[1-4] The results of current management appear to be unsatisfactory, and although a great deal has been published on the merits of a vast range of treatments, few controlled trials have been carried out. Furthermore, there are few data on the clinical history of chronic leg ulceration to provide a perspective for management and against which to assess the results of treatment. For example, some authors have suggested that all ulcers that do not heal in four months should be biopsied to rule out the possibility of malignancy.[5] The results of our study suggest that such a criteria would result in three quarters of all chronic leg ulcers being biopsied.

Much of the information on leg ulcers is from selected populations of patients, usually those attending hospital outpatient departments. A survey in the Lothian and Forth Valley areas, however, showed that three quarters of ulcers were managed in the community, which presents a formidable problem to the primary care services.[4]

We carried out a detailed survey of 600 patients with chronic leg ulceration to obtain information on the clinical history of this condition.

Methods

This study was carried out over 18 months in the neighbouring health board areas of Lothian and Forth Valley, which have a mixed urban and rural population of about one million. A preliminary survey was made to ascertain the scale of the problem and how care was being provided. The methods and results of this preliminary survey have been reported.[4] The survey covered both community and hospital medical and nursing services and so represented the full range and distribution of the disease in the region.

All 1477 patients identified in the preliminary survey were invited to participate in the study, and the only selection was by the general practitioner giving consent for us to approach the patient and the patient agreeing to be assessed within the time limits of the study. Patients who consented were interviewed and examined by the same observer (MJC) in outpatient departments, local health centres, or in their own homes, depending on their mobility and preference. Each interview and examination lasted between 45 and 90 minutes and consisted of a detailed history, clinical examination, and any relevant investigations. Standard recording forms for later computer analysis were used. The sample of 600 patients was compared with the overall series of 1477 patients in terms of age, sex, source

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of referral, and geographic distribution to demonstrate that the sample was representative.

This paper presents the data on the clinical history of the condition.

Results

A total of 1477 patients were identified in the original postal survey.[4] We set out to examine as many as possible in the time available but had to set a limit when we reached 600, a further eight having been rejected because of incomplete data. The 600 patients had 827 ulcerated legs. The total set of 1477 patients and the sample of 600 were similar in terms of age, sex, geographic location, and source of referral. Assessment of the underlying aetiological factors showed that 76% (632) of ulcerated legs had evidence of venous disease and 22% (176) of arterial insufficiency, and 9% (78) had rheumatoid arthritis. Five per cent of the patients (33) had diabetes. All other aetiological conditions were less common. Many ulcers were multifactorial in origin, preventing clear separation into different aetiological groups.

Age and sex distribution—Of the 600 patients, 427 were women and 173 were men. Table I gives the age distribution. In terms of age and sex it was similar to the overall distribution of leg ulcers in our area as shown in our previous survey.[4] Under age 40 the sex ratio was 1:1, but as age increased there was an increasing predominance of women. A comparison of the age-sex distribution in this series of patients with the age-sex distribution of the entire Lothian population showed that over age 70 the observed preponderance of women in the ulcer group was significantly greater than expected (χ^2, $p<0{\cdot}05$).

Age at onset of ulceration—Table II gives the age at onset of ulceration. Under age 30 the sex distribution was equal, but in the fifth decade the ratio of men to women was 1:2·4. This remained steady until the eighth decade when it began to rise. After 80 the male to female ratio was 1:7. Correction of the figures to allow for the predominance of women among the elderly, using the Registrar General's 1981 census statistics for the region, still showed a greater than expected number of women over 70 with leg ulcers. The initial ulcer had begun before age 40 in 145 (22%) patients and before 50 in 235 (40%) patients.

TABLE I—*Age and sex of 600 patients with leg ulcers*

Age (years)	Women	Men	Total No
20-29	1	1	2
30-39	2	5	7
40-49	17	15	32
50-59	54	30	84
60-69	103	54	157
70-79	144	52	196
80-89	92	14	106
90-99	14	2	16
Total No	427	173	600

TABLE II—*Age at onset of leg ulceration in 600 patients*

Age (years)	Women	Men	Total No
10-19	8	6	14
20-29	23	21	44
30-39	65	22	87
40-49	64	26	90
50-59	77	34	111
60-69	82	36	118
70-79	70	24	94
80-89	32	4	36
90-99	6	0	6
Total No	427	173	600

Duration of current ulcer—Half (413) of the current or most recent ulcers were reported to have been open for up to nine months, 169 (20%) had not healed after two years, and 64 (8%) were still open after five years (fig 1). The longest duration of a single episode of ulceration was 62 years in an 85 year old woman who had been kicked by a cow while working as a milkmaid during the first world war. The resulting ulcer had never healed.

Recurrence and number of episodes of ulceration—Figure 2 shows that in 555 (67%) patients the ulcers were already recurrent at the time of the survey; 287 (35%) patients had had four or more episodes of ulceration, 268 (32%) two or three episodes, and in just 272 (33%) was the patient suffering from a leg ulcer for the first time.

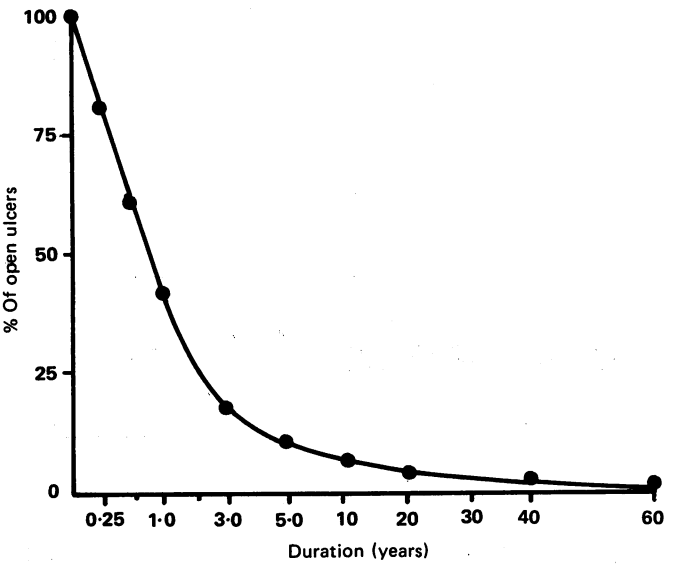

FIG 1—Duration of current ulcer in 827 legs.

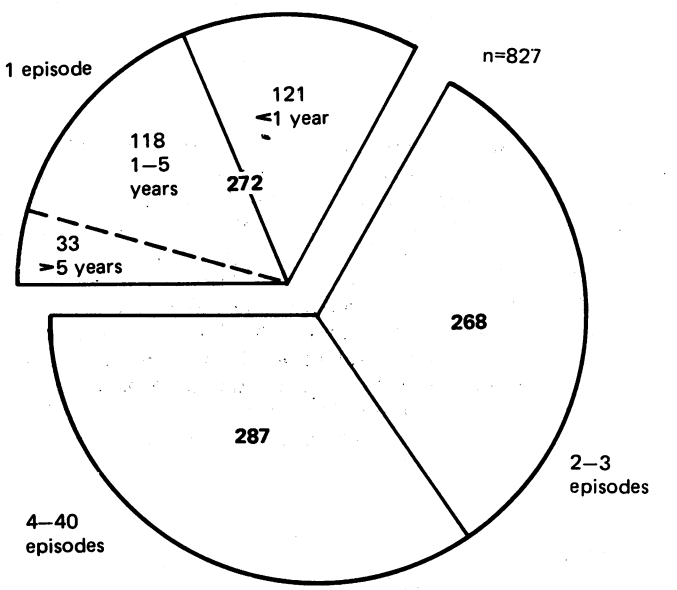

FIG 2—Number of episodes of ulceration in 827 legs.

Duration of the ulcer diathesis—This is defined as the period of time since the onset of the first ulcer to the time of the survey and is one index of the chronicity of the condition. Of the 600 patients, 270 (45%) had had episodes of ulceration for more than 10 years, 128 (21%) from five to 10 years, and 156 (26%) from one to five years. Only 46 (7·7%) had had episodes of ulceration for less than one year (range 0-72 years).

Side of ulceration—The 600 patients had 827 ulcerated legs. The ulceration was bilateral in 227 (38%), on the right side in 158 (26%), and on the left side in 215 (36%). The distribution between right and left legs was equal in men (114:114), however, and it is only in women that there was asymmetry. The greater number of ulcers on the left leg is statistically significant ($p=0{\cdot}05$).

Site of ulceration—The lower leg was divided for descriptive purposes into three zones: the foot, the gaiter area (from 2·5 cm below the malleoli to the point at which the calf muscles became prominent posteriorly), and the calf (fig 3). Ulcers could be accurately localised to a single zone in 720 legs (87%). In 105 legs (13%) two zones were affected and in two cases three zones. A

similar system was used to record whether the ulcer lay mainly on the medial, lateral, anterior, or posterior aspect of the leg. Gaiter ulcers (731) were on the medial side of 542 (74%) legs, on the lateral side of 356 (49%) legs, anterior in 58 (85%), and posterior in 23 (3%). In nine patients the ulcer was entirely circumferential. Calf ulcers had a different pattern. Medial (43·5%) and lateral (44%) ulcers occurred with equal frequency, with anterior ulcers being only marginally less frequent (38%). Posterior ulcers were much less common (9%), although still more frequent than in the gaiter area.

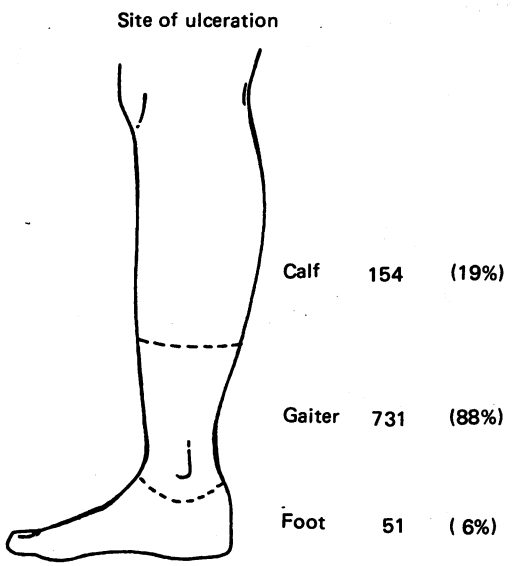

FIG 3—Site of ulcer in 827 legs.

Discussion

So far as we know this is the largest published population study of patients with leg ulcer. The only comparable studies are those of Bobek and his coworkers,[1] who found 153 active or healed ulcers in a population of 15 060 adults, and Widmer, who found 46 ulcers in a survey of 4529 adult factory workers.[2] No attempt was made to look at the clinical history of leg ulceration in these studies. The clinical history reflects an interaction between a chronic disease and intermittent medical intervention, without which it may be supposed that the prevalence would be greater and the proportion of permanently unhealed ulcers higher.

Leg ulceration is often regarded as a disease of elderly people. Since it is a chronic disorder the age distribution is heavily weighted towards the elderly, and with an aging population this trend is likely to continue. It is, however, notable that a substantial proportion of the patients were under age 60 at the time of the survey. More revealing is the age at the onset of the first episode of ulceration. More than one third of the patients had ulcers before they were 50 and more than two thirds before 65.

The age at onset can be correlated with different aetiological factors. Below age 30 the distribution between the sexes is virtually equal and particularly in men is frequently associated with trauma. Above 30 the male to female sex ratio increases to 1:2·4 and remains constant until the eighth decade where there is a further increase in the female predominance. This suggests a difference in pathogenesis. One obvious possibility is the greater frequency of some venous disorders in women, particularly deep vein thrombosis, which is often related to pregnancy. It is well recognised that this may lead to leg ulceration after a time,[6 7] and this type of history was frequently elicited during the study.

In two thirds of the legs examined a recurrence had already occurred. Of the remaining one third (272), many had had ulcers continuously since onset and thus could not have had a recurrence as the original ulcer had failed to heal. It is possible that the ulcers in this group of patients even if eventually healed would break down again, leading to an even higher recurrence rate. This must be set against the fact that a proportion of first time ulcers will heal up and never recur. Therefore, although it seems likely from these that the overall recurrence rate is greater than 67%, the precise rate cannot be calculated.

The number of episodes is one indicator of the chronicity of the condition, but equally important is the length of time each ulcer has remained open. Twenty per cent of all ulcers were still open after two years despite treatment and 8% after five years. These findings give a different and much less favourable impression when compared with reports of smaller series of patients treated in specialist clinics.[8-10]

The other index of chronicity is the duration of the ulcer diathesis. Our results support the dictum "once an ulcer patient always a potential ulcer patient," as in roughly half the patients the ulcer history went back at least 10 years.

Bilateral ulcer disease was present in 227 patients. The presence of systemic aetiological factors such as rheumatoid arthritis or diabetes was more common in this group. The higher number of ulcers on the left side in women appears to have been related to venous disease and in particular to the increased incidence of deep vein thrombosis in the left leg.

Most ulcers were wholly or partially in the gaiter area on the medial or, less commonly, the lateral aspect of the leg. This is consistent with the fact that most ulcers were caused by chronic venous disease. In the calf the distribution of ulcer sites was different, which suggests a more varied aetiological pattern.

The depressing reality of the natural history of chronic leg ulceration, and the extremely poor results obtained in the management, are shown when the problem is looked at on a regional basis rather than in short term studies of selected patients attending specialised clinics. The typical patient in our study had had three episodes of ulceration over nine years, with the most recent ulcer lasting about nine months. Although a disturbing lack of success has been shown in healing chronic leg ulcers in many patients, the more serious problem is the overwhelming rate of recurrence. This suggests that more attention should be paid to correcting the underlying aetiological factors. These factors were examined in this series of patients and will be reported on.

Many current treatments have not been adequately evaluated. Few doctors see a sufficient number of patients with leg ulcers to develop expertise or to evaluate adequately alternative treatments. One way of improving management would be to provide in each area or district a centralised diagnostic and advisory service available to primary care workers, who are responsible for most of the care. Educational programmes should be included in the service which should provide evaluation of treatment and the development of long term programmes of prevention.

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